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An effective lacticin biopreservative in fresh pork sausage.

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[Medline record in process]

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Lacticin 3147 is a novel heat-stable bacteriocin, produced by *Lactococcus lactis* DPC 3147, that exhibits a broad-range inhibition spectrum similar to nisin. In this study, the effect of lacticin 3147 and nisin on the shelf life of fresh pork sausage and their ability to control pathogens (*Clostridium perfringens* DSM 756, *Salmonella* Kentucky AT1) and nonpathogenic *Listeria innocua* DPC 1770 was investigated. The following preservative regimens were evaluated, both in broth and sausage systems: (i) 450 ppm of sodium metabisulphite; (ii) 500 IU g(-1) or ml(-1) of nisin, (iii) 2500 arbitrary units (AU) g(-1) or ml(-1) of lacticin 3147; (iv) 2% sodium lactate and 500 IU of nisin; (v) 2% sodium citrate and 500 IU g(-1) or ml(-1) of nisin; (vi) 2% sodium lactate and 2500 AU g(-1) or ml(-1) of lacticin 3147, (vii) 2% sodium citrate and 2500 AU g(-1) or ml(-1) of lacticin 3147, (viii) 2% sodium lactate, and (ix) 2% sodium citrate. There was no significant difference in the activity of nisin and lacticin 3147 against any of the target strains used, both bacteriocins performing significantly better than sodium metabisulfite against gram-positive strains in broth systems. Trends indicate that the combination of organic acids with either bacteriocin enhanced its activity against *Salmonella* Kentucky and *L. innocua* and was particularly effective in the inhibition of *C. perfringens* in fresh pork sausage. In addition, lacticin 3147 combined with either sodium citrate or sodium lactate maintained significantly lower ($P < 0.05$) total aerobic plate counts for the duration of the trials and may function as an alternative to sodium metabisulfite in the preservation of fresh pork sausage.

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